

**DISTRIBUTED IMPLEMENTATION OF CONTROL PROTOCOLS  
IN ROUTERS AND SWITCHES**

**ABSTRACT**

5           A router uses a distributed implementation of a routing control protocol to route a  
packet between a plurality of computer networks. The router includes a control-plane having  
a control-plane processor to implement a central control portion of the control protocol and a  
plurality of forwarding-planes, each having a forwarding-plane processor, to implement an  
offload control portion of the control protocol. A back-plane connects the forwarding-planes  
10 to each other and to the control-plane. Together, these components route a packet based on  
the distributed implementation of the control protocol. The protocol may be a signaling  
protocol, such as RSVP-TE, or a routing protocol, such as OSPF.